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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,048	12/31/2003	Jeffry Golden	42173-018	8958

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EXAMINER	
CHIN, BRAD Y	
ART UNIT	**PAPER NUMBER**
1744	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,048	GOLDEN, JEFFRY	
	Examiner	Art Unit	
	Brad Y. Chin	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *59-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *59-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 59-60 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 50-51 and 54-55 of copending Application No. 10/750,047 in view of Blidschun et. al. [U.S. Patent No. 4,680,163]. Copending Application No. 10/750,047 provides the teachings for a method of decontaminating a contaminated surface, the method comprising spraying an electrically charged photosensitizer onto the contaminated surface of a person occupiable space, and illuminating the sprayed surface with light to cause a chemical reaction to decontaminate the surface, where the person-occupiable space could be a non-conducting surface, but fails to teach the step of providing a conducting backing for the non-conducting surface, where the electrically charged photosensitizer would be attracted to the non-conducting contaminated surface. Blidschun et. al. provides the teaching for an electrostatic field which directs atomized, electrically charged droplets of photosensitizer to the surface of a non-conducting container for sterilization, where the electric field provides a conducting means or backing for the non-conducting surface to attract and retain the charged droplets of photosensitizer.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over the non-patent literature, Bayliss et. al., "The Combined Effect of Hydrogen Peroxide and Ultraviolet Irradiation on Bacterial Spores", Journal of Applied Bacteriology 47:263-269 (1979) in view of Blidschun et. al. [U.S. Patent No. 4,680,163].

Regarding claim 59, Bayliss et. al. teach a method for decontaminating the surface of a contaminated object, the method comprising: applying a photosensitizer [hydrogen peroxide – a commonly known photosensitizer] onto the contaminated surface and illuminating the sprayed surface with light to cause chemical reactions to decontaminate the surface (See p. 263 – ultraviolet [light] irradiation of spores of *Bacillus subtilis* in the presence of hydrogen peroxide produces a rapid kill which is up to 2000-fold greater than that produced by irradiation alone). Bayliss et. al. fail to teach the step for providing a conducting backing for the non-conducting surface. Blidschun et. al. teach the method for using ultrasonic energy to atomize droplets of photosensitizer, for subsequently electrically charging the droplets of photosensitizer using a corona discharge, and using an electric field to direct the atomized mist of photosensitizer

droplets to the surface of a non-conducting container, providing a conducting backing for the non-conducting surface to attract and retain the electrically charged droplets of photosensitizer (See col. 2, line 64 to col. 3, line 9; See col. 3, lines 34-41). Because Bayliss et. al. teach the effectiveness of illuminating a photosensitizer, such as hydrogen peroxide, with ultraviolet light for killing bacteria spores on contaminated surfaces, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Blidschun et. al. with Bayliss et. al. for incorporating the teachings of Bayliss et. al. into the method of Blidschun et. al. for providing an electric field for providing a conducting backing for the non-conducting surface of the containers to attract and retain the directed electrically charged droplets of photosensitizer, as taught by Blidschun et. al., for decontamination.

Regarding claim 60, Bayliss et. al. further teach the method of decontaminating a contaminated surface where the light includes light of wavelengths between about 200 nm and about 320 nm (See page 263 – ultraviolet irradiation of the spores at wavelengths 254 nm).

3. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sizer et. al. [U.S. Patent No. 5,843,374].

Sizer et. al. teach a system for decontaminating a contaminated surface, the system comprising an apparatus for spraying a photosensitizer on the surface (Summary of the Invention – sterilization apparatus for applying ultraviolet radiation synergistic sterilant, i.e. spraying hydrogen peroxide onto the surface of the packaging material, in sterilizing transparent packaging material); a light source for illuminating the sprayed contaminated surface (See col. 5, lines 45-50); and a temperature control system, which removes heat from the UV source (See col. 6, lines 49-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the heat removed from the UV source by the temperature control

system of Sizer et. al. could have been used for other purposes, such as for heating the photosensitizer to maintain the photosensitizer at a preferred temperature for reaction with the UV light source.

4. Claims 62-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over the non-patent literature, Bayliss et. al., in view of Blidschun et. al., and Vitta [U.S. Patent No. 4,934,396], Stewart et. al. [U.S. Patent No. 5,551,102], or Sutton [U.S. Patent No. 5,706,846].

Regarding claim 62, Bayliss et. al. teach a method for decontaminating the surface of a contaminated object, the method comprising: applying a photosensitizer [hydrogen peroxide – a commonly known photosensitizer] onto the contaminated surface and illuminating the sprayed surface with light to cause chemical reactions to decontaminate the surface (See p. 263 – ultraviolet [light] irradiation of spores of *Bacillus subtilis* in the presence of hydrogen peroxide produces a rapid kill which is up to 2000-fold greater than that produced by irradiation alone). Bayliss et. al. fail to teach the step of providing a portable barrier, surrounding the contaminated object with the portable barrier, spraying an electrically charged photosensitizer onto the contaminated object, attracting an overspray of the electrically charged photosensitizer to the portable barrier, and depositing the overspray of the electrically charged photosensitizer upon the portable barrier.

Vitta, Stewart et. al., or Sutton teaches mobile or portable decontamination systems, which allow a user to surround a contaminated object for decontamination. Vitta, Stewart et. al., and Sutton represent only a number of systems that provide a portable or mobile barrier around a contaminated object or subject.

Blidschun et. al. teach the use of a sterilizing agent or photosensitizer, hydrogen peroxide, which is ultrasonically atomized to form a mist, e.g. for spraying, charged and

subsequently directed to, e.g. spraying, the non-conducting [contaminated] surface to be sterilized by an electrostatic field. The electrostatic field provides a conducting backing for the non-conducting container wall and directs the exceedingly small, electrically-charged droplets of photosensitizer, which form the mist of the sterilizing agent, to be attracted to and retained upon the non-conducting contaminated surface of the containers (See col. 2, line 64 to col. 3, line 9; See col. 3, lines 34-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Bayliss et. al. with the teachings of Blidschun et. al. and Vitta, Stewart et. al., or Sutton because Bayliss et. al. teach the effectiveness of illuminating a photosensitizer, such as hydrogen peroxide, with ultraviolet light for killing bacteria spores on contaminated objects or surfaces. Blidschun et. al. broadens the applicability of Bayliss' method by teaching the application of spraying an electrically charged photosensitizer onto a contaminated non-conducting object or surface, where an electric field in conjunction with the electrical charge of the droplets provide a conducting backing or means for the droplets to be attracted to and retained upon the originally non-conducting contaminated surface. Blidschun et. al. provide the teachings and motivation for controlling the application of the electrically charged photosensitizer onto a non-conducting surface, such as the portable barriers taught by Vitta, Stewart et. al., or Sutton. Vitta, Stewart et. al., or Sutton each provide the motivation for a portable barrier or mobile system for decontaminating objects or surfaces, where use of such methods as taught by Blidschun and Bayliss provide another means for decontaminating non-conducting contaminated surfaces within the mobile system or portable barriers. Mobility or portability enhances the ability of decontamination systems using photosensitizers and ultraviolet light for quick response decontamination of conductive and non-conductive contaminated surfaces in multiple locations in a relatively short period of time. Inherently, the

method as taught by Blidschun et. al. provides for the attracting of overspray of the electrically charged photosensitizer to the portable barrier because the electric field provides a conducting backing for attracting and retaining the excess or oversprayed electrically charged photosensitizer droplets. Further, the electric field functions to direct or deposit such oversprayed electrically charged photosensitizer droplets towards the originally non-conducting contaminated surfaces contained within the portable barrier decontamination system.

Regarding claims 63, Bayliss et. al. in view of Blidschun et. al. and Vitta, Stewart et. al., or Sutton teach the method as described above, but fail to teach that a barrier is electrically charged to attract the overspray of an electrically charged photosensitizer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method as taught by Bayliss et. al. in view of Blidschun et. al. and Vitta, Stewart et. al., or Sutton for electrically charging the portable barrier, i.e. the room in which the object or surface is being decontaminated, to attract the excess or oversprayed electrically charged photosensitizer because electrically charging the barrier would prevent excess or oversprayed photosensitizer from accumulating on the contaminated object or surface. This procedure would allow for a more uniform layering of photosensitizer onto the object or surface, enhancing the effectiveness of the ultraviolet light reaction with the photosensitizer. Additionally, it would prevent excess photosensitizer from hanging in the air.

Regarding claim 64, Bayliss et. al. in view of Blidschun et. al. and Vitta, Stewart et. al., or Sutton teach the method as described above, but fail to teach that the barrier is grounded to attract the excess of oversprayed electrically charged photosensitizer to the surfaces of the barrier. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method as taught by Bayliss et. al. in view of Blidschun et. al. and Vitta, Stewart et. al., or Sutton for grounding the barrier because grounding would attract the excess

or oversprayed electrically charged photosensitizer to the surfaces of the barrier and thus avoid unwanted electrical charging of the spraying mechanism, while allowing for a more uniform layering of photosensitizer onto the object or surface and enhancing the effectiveness of the ultraviolet light reaction with the photosensitizer.

Regarding claim 65, Bayliss et. al. further teaches that the light includes UV light (See Bayliss, p. 263 – ultraviolet [light] irradiation of spores of *Bacillus subtilis* in the presence of hydrogen peroxide produces a rapid kill which is up to 2000-fold greater than that produced by irradiation alone).

Regarding claim 66, Bayliss et. al. in view of Blidschun et. al. and Vitta, Stewart et. al., or Sutton teach the method as described above, but fail to teach that the barrier is substantially opaque to UV light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method as taught by Bayliss et. al. in view of Blidschun et. al. and Vitta, Stewart et. al., or Sutton making the barrier substantially opaque to UV light for preventing loss of ultraviolet light from within the portable barrier and subsequently protecting individuals, objects, or surfaces outside of the portable barrier from exposure to the ultraviolet light.

5. Claims 67-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over the non-patent literature, Bayliss et. al., in view of Blidschun et. al., and Vitta, Stewart et. al., or Sutton.

Regarding claim 67, Bayliss et. al. teach a method for decontaminating the surface of a contaminated object, the method comprising: applying a photosensitizer [hydrogen peroxide – a commonly known photosensitizer] onto the contaminated surface and illuminating the sprayed surface with light to cause chemical reactions to decontaminate the surface (See p. 263 – ultraviolet [light] irradiation of spores of *Bacillus subtilis* in the presence of hydrogen peroxide

produces a rapid kill which is up to 2000-fold greater than that produced by irradiation alone). Bayliss et. al. fail to teach the step of providing a portable barrier, surrounding the contaminated object with the portable barrier, establishing an air flow into the exit and out of the entrance, and spraying the photosensitizer onto the surfaces of the contaminated object.

Vitta, Stewart et. al., or Sutton each teaches providing a mobile decontamination system or portable barrier having an entrance and an exit therein for surrounding a contaminated object for decontamination. Vitta, Stewart et. al., and Sutton represent only a number of systems that provide a portable or mobile barrier around a contaminated object or subject.

Blidschun et. al. teach the use of a sterilizing agent or photosensitizer, hydrogen peroxide, which is ultrasonically atomized to form a mist, e.g. for spraying, charged and subsequently directed to, e.g. spraying, the non-conducting [contaminated] surface to be sterilized by an electrostatic field. The electrostatic field provides a conducting backing for the non-conducting container wall and directs the exceedingly small, electrically-charged droplets of photosensitizer, which form the mist of the sterilizing agent, to be attracted to and retained upon the non-conducting contaminated surface of the containers (See col. 2, line 64 to col. 3, line 9; See col. 3, lines 34-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Bayliss et. al. with the teachings of Blidschun et. al. and Vitta, Stewart et. al., or Sutton because Bayliss et. al. teach the effectiveness of illuminating a photosensitizer, such as hydrogen peroxide, with ultraviolet light for killing bacteria spores on contaminated objects or surfaces. Blidschun et. al. broadens the applicability of Bayliss' method by teaching the application of spraying an electrically charged photosensitizer onto a contaminated object or surface, where an electric field in conjunction with the electrical charge of the droplets provide a conducting backing or means for the droplets to be attracted to and

retained upon the surfaces of the contaminated surface. Blidschun et. al. provide the teachings and motivation for controlling the application of the electrically charged photosensitizer onto a surface, such as the portable barriers taught by Vitta, Stewart et. al., or Sutton. Vitta, Stewart et. al., or Sutton each provides the motivation for a portable barrier or mobile system having an entrance and an exit therein for decontaminating objects or surfaces, where use of such methods as taught by Blidschun and Bayliss provide another means for decontaminating the surfaces of contaminated objects contained within the mobile system or portable barriers. Mobility or portability enhances the ability of decontamination systems using photosensitizers and ultraviolet light for quick response decontamination of conductive and non-conductive contaminated surfaces in multiple locations in a relatively short period of time, where surrounding the contaminated objects with the barrier prevents the spread of contaminants to the surrounding area. Stewart et. al. further teach the importance of preventing contaminated air from mixing freely with adjacent compartments (See col. 4, lines 19-22). Accordingly, it would have been obvious to modify Bayliss et. al. in view of Blidschun et. al. with Stewart et. al. for establishing an air flow that would direct air out of the room through a filtered exhaust or that would direct air into the exit and out of the entrance of the contamination area, preventing contaminated air from moving out of the exit and towards the "clean" areas.

Regarding claim 68, Bayliss et. al. further teach that the light includes light of wavelengths between about 200 nm and about 320 nm (See p. 263 – ultraviolet irradiation of the spores at wavelength 254 nm).

Response to Arguments

6. Applicant's arguments filed 22 June 2005 have been fully considered where some of Applicant's arguments are persuasive while other arguments are not persuasive. Applicant

argues that Examiner has failed to make a prima facie case for obviousness under 35 U.S.C. 103(a). Applicant further argues that Sizer et. al. fail to teach all of the claim limitations, citing Examiner's statement that "Sizer fails to teach that the temperature control system uses the waste heat from the light source to heat the photosensitizer." Applicant further cites MPEP 2143.01, arguing that the claimed invention and Sizer et. al. solve different problems. Applicant further argues that Sizer et. al. teach away from using waste heat from the UV source to warm the photosensitizer, describing the structural limitation for a temperature control system, which removes heat from the UV source. Applicants further argues that "Sizer et. al. saw the excess heat of the lamp as a problem to be dealt with, by using a cooling system as well as by employing a lamp that produces less heat, rather than a potential benefit actually teaches away from the idea of using the excess heat for a beneficial purpose, such as warming the photosensitizer. Applicant further argues that "the goal of Sizer et. al. is not only to remove heat that is generated but also to minimize production of heat in the first place by using an excimer UV source rather than the mercury-based UV lamps that had been previously used" (See Applicant Remarks, pages 5-8).

Examiner notes that Applicant focuses his arguments on the fact that Sizer et. al. fail to teach the functionality or process of using the temperature control system for heating the photosensitizer. Applicant acknowledges that Sizer et. al. teach the structural limitation for a heat exchanger for removing heat from the UV source, using a cooling fluid to act as the heat sink for removing such heat from the lamp (See Applicant Remarks, page 7). Examiner disagrees with Applicant's argument that "the goal of Sizer et. al. is not only to remove heat that is generated but also to minimize production of heat in the first place by using an excimer UV source rather than the mercury-based UV lamps that had been previously used. Sizer et. al. teach that a preferred ultraviolet radiation source is an excimer lamp; however, the present

invention may be practiced by other ultraviolet lamps which emit a favorable ultraviolet radiation. These ultraviolet radiation sources may be mercury-based lamps, which emit a preferred wavelength (See col. 5, lines 46-50). As described above in paragraph 3, Sizer et. al. teach the structural limitations of the claimed apparatus invention, including the temperature control system, i.e. the heat exchanger/sink system (See col. 6, lines 49-60), where the apparatus as described by Sizer et. al., is capable of using the heat, i.e. waste heat, removed from the UV source for heating the photosensitizer. A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art reference satisfying the claimed structural limitations, *Ex parte Masham*, 2 USPQ2d 1647.

7. Applicant's arguments and amendments filed 22 June 2005 with respect to claims 62-66 have been fully considered but they are not persuasive. The cited prior art references inherently teach the attraction of oversprayed electrically charged photosensitizer towards the portable barrier and the depositing of the overspray upon the portable barrier by the electric field, as described above in paragraph 4.

8. Applicant's arguments and amendments filed 22 June 2005 with respect to claims 67-68 have been fully considered but they are not persuasive. The cited prior art references inherently teach the attraction of oversprayed electrically charged photosensitizer towards the portable barrier and the depositing of the overspray upon the portable barrier by the electric field, as described above in paragraph 5.

9. Examiner has withdrawn the allowability of claims 59-60 in view of the double patenting rejection over copending Application 10/750,047 in view of Blidschun et. al. 4,680,163], as described above in paragraph 1, and the rejection under 35 U.S.C. 103(a) as being unpatentable over the non-patent literature Bayliss, et. al. in view of Blidschun et. al., as described above in paragraph 2.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brad Y. Chin whose telephone number is 571-272-2071. The examiner can normally be reached on Monday – Friday, 8:00 A.M. – 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sun (John) Kim, can be reached at 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

byc
August 26, 2005

JOHN KIM
SUPERVISORY PATENT EXAMINER